



**King Saud University**  
**College of Computer and Information Sciences**  
**Computer science department - CSC115 -Programming in C++,**  
**Final Fall 2018      40 Marks      (Time: 2 hours)**

**Student ID** \_\_\_\_\_ **Name:** \_\_\_\_\_

**Q1. Circle the right answer. (15 marks)**

<b>1.</b> Function <code>display_comment()</code> doesn't send data to the function and doesn't receive any . <b>True</b> <b>False</b>	<b>2.</b> Each class contains data as well as the set of functions that manipulate the data. <b>True</b> <b>False</b>
<b>3.</b> Function prototype is a way to declare a function. <b>True</b> <b>False</b>	<b>4.</b> <code>#include&lt;...&gt;</code> is used to include predefined function. <b>True</b> <b>False</b>
<b>5.</b> A structure can have multiple constructors. <b>True</b> <b>False</b>	<b>6.</b> A structure contains members of different data types. <b>True</b> <b>False</b>
<b>7.</b> Two or more structure types may use the same member names. <b>True</b> <b>False</b>	<b>8.</b> <code>void</code> is valid return type for a function. <b>True</b> <b>False</b>
<b>9.</b> Individual members of a class are accessed by using dot operator. <b>True</b> <b>False</b>	<b>13.</b> Array declaration <code>int list[25];</code> will create 26 elements. <b>True</b> <b>False</b>
<b>10.</b> Class constructor name is user defined. <b>True</b> <b>False</b>	<b>11.</b> Elements of the array are called indexed variables. <b>True</b> <b>False</b>
<b>12.</b> A class can have multiple constructors with different parameters. <b>True</b> <b>False</b>	<b>15.</b> Array can be used as an argument of a function. <b>True</b> <b>False</b>
<b>14.</b> Individual element of an array cannot be used as an argument of a function. <b>True</b> <b>False</b>	

Q2. Write output of each of the following program.

(9 marks)

<p>a) (3 marks)</p> <pre>#include&lt;iostream&gt; using namespace std; void function1(); int main() {     int z;     z = 5;     function1();     cout &lt;&lt; "The value of z inside function main is "&lt;&lt; z;     return 0; } void function1() {     int z = 99;     cout &lt;&lt; "The value of z inside functinl is "&lt;&lt; z;}</pre>	<p><u>Output</u></p> <p>The value_of z inside function1 is 99</p> <p>The value_of z inside function main is 5</p> <p>.....</p>
---	--

<p>b) (3 marks)</p> <pre>struct Pixel { int C, R; }; void Display(Pixel P){ cout &lt;&lt; "Col "&lt;&lt; P.C &lt;&lt; " Row " &lt;&lt; P.R &lt;&lt; endl; } int main(){ Pixel X = {40,50}, Y, Z; Z = X; X.C += 10;Y = Z; Y.C += 10; Y.R += 20; Z.C -= 15; Display(X); Display(Y); Display(Z); return 0; }</pre>	<p><u>Output</u></p> <p>Col 50 Row 50</p> <p>Col 50 Row 70</p> <p>Col 25 Row 50</p> <p>.....</p> <p>.....</p>
---	---

c) Assume user enters 11, 15, 9, 0, 31

(3 marks)

```
#include<iostream>
using namespace std;
int main() {
int number [10], i;

for (i=0; i<5; i++)
    cin >> number[i];

for (i=4; i>=0; i--)
    cout << number[i]<<endl;
return(0);
}
```

Output:

31

0

9

15

11

---

**Q3. Write lines code for each of the following****(10 marks)**

a) An array stores salary of 25 employees of a company. Write lines of code to create such an array. It then adds 5% to the salary of each employee if its salary is less than 1500 and prints out the number of employees whose salaries is raised. **(5 marks)**

---

```
#include <iostream>
using namespace std;
int main()
{
    double salary [25];
    double newsalary[25];
    int i,nb=0;
    for(i=0;i<25;i++)
    {
        cout<<"Enter the salary of employee "<<i+1<<" =";
        cin>>salary[i];
        if (salary[i]<=1500)
        {
            newsalary[i]=(salary[i]*1.05);
            nb++;
        }
        else
            newsalary[i]=salary[i];
    }
    cout <<"\n the number of employees whose salaries is raised: "<<nb<<endl;
    for(i=0;i<25;i++)
    {
        cout<<"The new salary of employee"<<i+1<<"is: "<<newsalary[i]<<" SR"<<endl;
    }
    return 0;
}
```

b) Write a code to create a structure **Date** which has three members: year, month and day. Create two structures **date1** and **date2**. Compare two dates entered by user. If the dates are equal, display "Dates are equal" otherwise display "Dates are not equal". (5 marks)

---

```
#include <iostream>
using namespace std;
struct Date
{
    int year;
    int month;
    int day;
};
Date get_data()
{
    Date d;
    cout<<"Enter the year: ";
    cin>>d.year;
    cout<<"Enter the month: ";
    cin>>d.month;
    cout<<"Enter the day: ";
    cin>>d.day;
    return d;
}
void print_date(Date p)
{
    cout<<p.year<<endl;
    cout<<p.month<<endl;
    cout<<p.day;
}
int main()
{
    Date d1,d2;
    d1=get_data();
    d2=get_data();
    cout<<"The first date is: "<<endl;
    print_date(d1);
    cout<<"\n The second date is :"<<endl;
    print_date(d2);
    if ((d1.year==d2.year)&&(d1.month==d2.month)&&(d1.day==d2.day))
    cout<<"\n You enter the same date.";
    else
    cout<<"\n Your dates are different.";
    return 0;
}
```

---

Q4. Complete the missing code in the program below.

(6 Marks)

```
#include <iostream>
using namespace std;
class Part {
private:
    int Partid[3];
    std::string PartName[3];
    int year[3];
public:
    Part (int Partid[],string PartName[],int part[]);
    void display();
};

Part::Part(int Partid[], string PartName[],int part[]) {
    for(int i=0; i<3; i++) {
        Partid[i]=Partid[i];
        PartName[i]=PartName[i];
        year[i]=part[i];
    }
}

void Part::display() {
    for(int i=0; i<3; i++) {
        cout<<"The Part id is "<<Partid[i]<<endl;
        cout<<"The Part Name is "<<PartName[i]<<endl;
        cout<<"The Part year is "<<year[i]<<endl;
    }
}

int main() {
    int Partid[3] ;
    string PartName[3];
    int year[3];

    Partid[0]=123;
    PartName[0]="Wheel";
    year[0]=2011;

    Partid[1]=124;
    PartName[1]="Mirror";
    year[1]=2012;

    Partid[2]=125;
    PartName[2]="Brake";
    year[2]=2013;

    Part
part (Partid,PartName,year) ;
    part.display();
}
```

Output:

```
The Part id is 123
The Part Name is Wheel
The Part year is 2011

The Part id is 124
The Part Name is Mirror
The Part year is 2012

The Part id is 125
The Part Name is Brake
The Part year is 2013
```

.....